

REMARKS

Claims 2-25 and 27 are pending in the present application. Claims 11-14 and 19-25 have been withdrawn as being directed to non-elected inventions. Claims 1 and 26 have been canceled. Claim 27 has been added. Claims 2-10 and 15-18 have been amended. Proposed amendments to FIG. 2 of the drawings are being submitted for approval for the addition of a feature of the invention described in the specification but not previously shown. Applicants retain the right to prosecute the withdrawn claims in one or more divisional applications.

Applicants respectfully request reconsideration of the application in view of the foregoing amendments and the remarks appearing below, which Applicants believe place the application in condition for allowance.

Objection to Drawings

The Examiner has objected to the drawings as failing to comply with 37 CFR § 112(f) prohibiting the introduction of new matter into the disclosure of an application. In particular, the Examiner states that the original disclosure does not support the showing of heater 35 surrounding the enclosure.

In view of this objection, Applicants propose to show heater 35 as shown in the proposed FIG. 2 attached hereto. Applicants believe that the proposed amendments do not contain any new matter. This is so because the proposed figure shows heater 35 highly schematically as being in thermal communication with either enclosure or the substrate, as discussed in the specification at page 8, lines 3-4 and in claim 8 as originally filed. Once the Examiner has approved this change, Applicants will amend the specification at page 8, line 3 to recite "heater 35," in place of "heater (not shown)."

Rejections Under 35 U.S.C. § 112, Second Paragraph

The Examiner has rejected claims 2-10, 15-18 and 26 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter Applicants regard as their invention.

In particular, regarding claims 15 and 26, the Examiner states that the term "adapted for" is vague and indefinite since it is not a positive limitation in any patentable sense. Applicants

have amended the claims so as to remove the "adapted for" language. Therefore, the present rejection is now moot.

Regarding claims 5 and 7, the Examiner states that it is unclear as to which chamber the word "chamber" in each of these is referring to, since base claim 26 recites first and second chambers. Applicants have amended each of claims 5 and 7 to particularly recite "said second chamber" in place of "said chamber." Accordingly, the present rejection is now moot.

Regarding claim 8, the Examiner states that it is unclear as to where the heating element is shown in the drawings. Applicants assert that once the Examiner approves the attached proposed FIG. 2, the heating element recited in this claim will be supported by heater 35. Therefore, Applicants believe that this rejection will become moot when the Examiner approves proposed FIG. 2.

Regarding claim 10, the Examiner states that in line 2 of this claim the phrase "at least one chemical component" lacks positive antecedent basis as it is merely recited in an intended use clause and, further, that this phrase is not a limitation of the claim. Applicants have amended claim 10 to be dependent from new claim 27, which does not include the language at issue. Accordingly, Applicants respectfully submit that the present rejection is moot.

Regarding claims 17 and 18, the Examiner states that the terms "the non-toxic part" and "the toxic part" in the corresponding claims lack antecedent basis because they are merely recited in an intended use clause and, further, that these terms are not limitations of these claims. Applicants have amended claims 15, 17 and 18 in a manner that these terms now have proper antecedent basis and are limitations of the respective claims. Therefore, Applicants submit that the present rejection is moot.

For at least the foregoing reasons, Applicants respectfully request that the Examiner withdraw the present indefiniteness rejections.

Rejections Under 35 U.S.C. § 102

Shiban et al.

The Examiner has rejected claims 26, 3, 5, 7, 10 and 15-18 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,271,908 to Shiban et al., stating Shiban et al. disclose all the elements of these claims. Applicants respectfully disagree.

As discussed in Applicants' Response of 5/27/03, Shibana et al. disclose an apparatus for neutralizing pyrophoric gas that is created by a process, such as chemical vapor deposition. The apparatus includes a neutralization chamber 10 wherein the pyrophoric gas is mixed with a quantity of air sufficient to neutralize the pyrophoric gas. The chamber contains baffles 14 for creating the turbulence needed to mix the air and pyrophoric gas together. When the pyrophoric gas contains a silane, its neutralization creates silicon dioxide in the form of a brownish dust or sand. The apparatus is constructed of sheet metal.

New claim 27, which essentially replaces rejected claim 26 and from which claims 3, 5, 7 and 10 now depend, recites several limitations not disclosed or suggested by Shibana et al. For example, claim 27 states that a second chamber contains at least one substrate having deposited thereon by vapor deposition a second component of an exhaust gas. Shibana et al. disclose only a gas-mixing device and are completely silent on vapor deposition. In addition, claim 27 states that the second chamber has an outlet for exhausting substantially only a first component of the exhaust gas. In contrast, Shibana et al. disclose an outlet that exhausts from the mixing chamber not only all of the pyrophoric gas input into the chamber but also a large amount of air (e.g., 70 times the amount of pyrophoric gas) that is also input into the chamber. Therefore, it cannot reasonably be asserted that the Shibana et al. outlet exhausts substantially only a fractional component of the pyrophoric gas. Rather, it exhausts much more than this fractional component. Consequently, the Shibana et al. patent cannot anticipate new claim 27, nor the claims 3, 5, 7 and 10 that depend therefrom.

Similar to new claim 27, amended independent claim 15 requires a first apparatus that removes at least a portion of a non-toxic part of an exhaust gas by chemical vapor deposition. Again, the Shibana et al. apparatus does not remove any part of the pyrophoric gas, by chemical vapor deposition or otherwise. Rather, the Shibana et al. apparatus is merely a mixing chamber. In addition, amended claim 15 requires a second apparatus adapted for removing at least a portion of a toxic part from a gas. Shibana et al. are completely silent on any such apparatus. For at least these reasons, the Shibana et al. apparatus cannot reasonably be said to anticipate the system of amended independent claim 15, and claims 16-18 that depend therefrom.

In view of the foregoing, Applicants respectfully request that the Examiner withdraw the present anticipation rejection.

Blickle et al.

The Examiner has rejected claims 26, 3-5, 7, 8, 10, 15-18 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 3,607,104 to Blickle et al., stating Blickle et al. disclose all the elements of these claims. Applicants respectfully disagree.

As discussed in Applicants' Response of 5/27/03, Blickle et al. disclose an apparatus for the intensification of liquid and/or gas phase contact. The apparatus includes a pair of chambers 22, 23 separated by a perforated partition wall 21. Each chamber includes a plurality of baffles 12 and is partially defined by a perforated gas diffusion plate 10 for diffusing an inert gas in order to cause the media in the two chambers to foam. During operation, media within each of the two chambers is caused to flow, resulting in a very fast mass transfer between the two media without mixing occurring through the perforated partition wall.

Similar to the assertions made above with respect to the Shibani et al. device, the Blickle et al. apparatus is not a vapor deposition apparatus. Therefore, the Blickle et al. apparatus cannot anticipate new claim 27 nor amended claim 15, each of which positively recite a limitation directed to vapor deposition. In new claim 27, the relevant limitation is "at least one substrate having deposited thereon by vapor deposition said second component of said exhaust gas." In amended claim 15, the relevant limitation is "a first apparatus . . . removing at least a portion of said non-toxic part of said exhaust gas by chemical vapor deposition."

In addition, similar to the Shibani et al. patent discussed above, Blickle et al. do not disclose (1) an outlet for exhausting substantially only a first component of the exhaust gas as recited in new claim 27 and (2) a second apparatus adapted for removing a portion of a toxic part of a gas, as required by amended independent claim 15. For these additional reasons, the Blickle et al. device cannot anticipate new claim 27 and amended claim 15.

Regarding dependent claim 4, Applicants disagree with the Examiner's characterization of the Blickle et al. partition wall 21 as a baffle. The perforated partition wall is not a baffle, but rather a wall defining two chambers. Regarding dependent claims 10, 17, and 18, Blickle et al. are completely silent on a gas containing silicon, silane, and arsine, respectively. Regarding dependent claim 16, Blickle et al. are completely silent on a substrate receiving a film by chemical vapor deposition. For these additional reasons, Blickle cannot anticipate claims 4, 10, and 16-18.

In view of the foregoing, Applicants respectfully request that the Examiner withdraw the present anticipation rejection.

Rejections Under 35 U.S.C. § 103

Shiban et al. and Smith et al.

The Examiner has rejected claim 2 under 35 U.S.C. § 103 as being obvious in view of the Shiban et al. patent, discussed above, and U.S. Patent No. 5,213,767 to Smith et al., stating Shiban et al. disclose all of the elements of claim 2 except at least one substrate made of quartz. The Examiner then states that Smith et al. disclose a container made of quartz and asserts it would have been obvious to a person having ordinary skill in the art to make the Shiban et al. baffles out of quartz. Applicants respectfully disagree.

As discussed above, the Shiban et al. patent does not disclose or suggest several limitations of claim 2 that are part of claim 2 by virtue of its dependency on new claim 27. For example, Shiban et al. do not disclose either vapor deposition or an outlet that exhausts substantially only a fractional component of the pyrophoric gas as required by claim 2.

Smith et al. disclose a multistage exhaust gas conditioning device that converts hazardous components of the exhaust gas into safer solids or gases by chemical reaction between components of the exhaust gas with certain reactive materials. Accordingly, Smith et al. also do not disclose the limitation of claim 2 of vapor deposition. In addition, since components of the exhaust gas react with the various reactive materials in the Smith et al. device thereby consuming the reactive material, and some of the new material formed during this process are exhausted from the device, Smith et al. do not disclose the limitation of claim 2 of an outlet that exhausts substantially only a fractional component of the pyrophoric gas.

Furthermore, as discussed in their Response of 5/27/03, Applicants assert that it would not be obvious to make the Shiban et al. baffles out of quartz. Making the Shiban et al. baffles out of quartz would contradict the motivation behind the Shiban et al. apparatus to provide an inexpensive solution to pyrophoric gas neutralization by mixing with air. Accordingly, Applicants assert that the Examiner is making the present rejection in hindsight of claim 2.

For the foregoing reasons, Applicants believe that the present rejection is improper.

Shiban et al. and Blickle et al.

The Examiner has rejected claims 6 and 9 under 35 U.S.C. § 103 as being obvious in view of the Shiban et al. and Blickle et al. patents, stating Shiban et al. disclose all of the elements of these claims except a plurality of baffles each having a plurality of apertures and removable baffles. The Examiner then states that Blickle et al. disclose apertured baffles and asserts it would have been obvious to a person having ordinary skill in the art to provide the Shiban et al. apparatus with apertured baffles and to make the baffles removable. Applicants respectfully disagree.

The cited combination cannot render these claims obvious because neither the Shiban et al. nor the Blickle et al. patent disclose at least the limitations discussed above relative to the anticipation rejections citing these patents. In addition, the missing elements are not provided by ordinary skill in the art, nor by any other reference(s) of record. Moreover, as discussed above, Blickle et al. do not disclose a plurality of apertured baffles. Blickle et al. disclose only a perforated partition wall and a perforated gas diffusion plate. Neither of these structures can fairly be said to be baffles. Therefore, any combination of the Shiban et al. and Blickle et al. patents would lack a plurality of apertured baffles as required by claim 6. Therefore, the present rejection of claim 6 is improper.

Regarding claim 9, Applicants assert that it would not be obvious to a person having ordinary skill in the art to make either the Shiban et al. or Blickle et al. baffles removable and reusable as required by claim 9. This is so because there simply is no reason to make the Shiban et al. or Blickle et al. baffles removable and reusable. The reason the substrates of the present invention are removable and reusable is because after a period of use, the substrates become coated with deposits from the chemical vapor deposition removal process. When these deposits reach a certain thickness, the substrates can be cleaned and placed back into the apparatus. In contrast, the Shiban et al. and Blickle et al. baffles do not build up any such deposits. The only reason to make them removable would be because of damage due to wear, but in this case they would not be reusable because they would be damaged. Accordingly, Applicants assert that the Examiner is making the present rejection in hindsight of claim 9. Again, this type of hindsight is improper in formulating obviousness-type rejections. Therefore, Applicants believe that the present rejection is improper.

For at least the foregoing reasons, Applicants respectfully request that the Examiner withdraw the present obviousness-type rejections of claims 2, 6, and 9.

CONCLUSION

In view of the foregoing, Applicants submit that claims 2-10, 15-18, and 27, as amended, are now in condition for allowance. Therefore, prompt issuance of a Notice of Allowance is respectfully solicited. If any issues remain, the Examiner is encouraged to call the undersigned attorney at the number listed below.

Respectfully submitted,

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Attachment
Proposed amendment to FIG. 2

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